REMARKS

Reconsideration of the rejections set forth in the Office Action is respectfully requested. By this Amendment, claims 2-3 and 6 have been canceled without prejudice or disclaimer, and claim 1 has been amended. Currently, claims 1, 7-16, and 18-20 are pending in this application.

Rejection under 35 USC 112, first and second paragraphs

The Examiner rejected claims 1-20 under 35 USC 112, first and second paragraphs, as failing to comply with the written description requirement and indefinite. Specifically, the Examiner stated that the phrase "an identity of a network element that initiated the link state advertisement" was not described in the specification (see Office Action at paragraph 3) and was not understood (see Office Action at paragraph 5). These rejections are respectfully traversed in view of the fact that this phrase does not appear in any of claims 1, 7, or 16.

Claim 1 was amended in the Amendment dated June 6, 2008, to recite:

> A method of controlling the dissemination of routing information on a communication network, the method comprising the steps of:
>
> receiving a link state advertisement by a node from the network, the link state advertisement containing link state information;
>
> determining, from the link state information, whether the link state advertisement should continue to propagate on the network based on whether the link state information contained in the link state advertisement is relevant; and
>
> selectively forwarding the link state advertisement on the network if the link state information is relevant.

As is clear from this claim, the phrase "an identity of a network element that initiated the link state advertisement" does not appear in claim 1. Similar amendments were made to claims 7 and 16 in that amendment. Applicants have further amended claim 1 in this amendment to refocus the claim, but have not included the phrase that the Examiner objected to in this rejection. Accordingly, applicants respectfully submit that this rejection is moot and request that it be withdrawn.

Rejection under 35 USC 102(e)

Claims 1-3 and 6 were rejected under 35 USC 102 as anticipated by Li et al. (U.S. Patent Publication No. 20040174825). This rejection is respectfully traversed in view of the amendments to the claims and the following arguments.

This application relates to a way to control the dissemination of routing information in a communication network. Link state routing protocols such as IS-IS or OSPF allow network elements to exchange link state information by transmitting link state advertisements. Link state advertisements are typically flooded on the network so that they can be received by all network elements on the network. However, for scalability purposes, it is important to limit the distance a LSA is flooded on the network. Typically, this was done by imposing boundaries on the network and allowing LSAs to only flood within the bounded area.

Li uses this approach. Specifically, at paragraph 32 Li states that the network nodes are arranged in "cells or clusters 12". In Li, each cell or cluster includes corresponding cluster member nodes 10 with one of the cluster member nodes being designated as a cluster head node or base station 14. Each cluster forms a Flooding Group (Li at Paragraph 33). One of the nodes is elected as a Flooding Proxy (FP) 14. FPs are interconnected by flooding paths 16 so that routing information may be passed between Flooding Groups. All members of a particular flooding group are referred to as Flooding Group Members (FGM). This architecture defines a flooding architecture that enables link state advertisements to be disseminated on Li's network. (Li at paragraph 35).

Thus Li, like normal OSPF, used a structured approach in which areas of the network were first defined and flooding of LSAs was limited to stay within the local area. Li uses the term Flooding Group whereas OSPF uses the term area. Applicants were attempting to avoid imposing areas on the network, since this imposes an administrative overhead – nodes are required to be assigned to areas. As the nodes move, this assignment needs to be updated, etc., which imposes additional overhead on network administration. (See specification at paragraph 16).

As described in paragraph 39 of the specification as originally filed, applicants proposed two ways to limit the dissemination of link state advertisements. One way to do this was to use a distance traveled indicator that is incremented/decremented at each hop. Another way was to have each node look at the information contained within the link state advertisement to

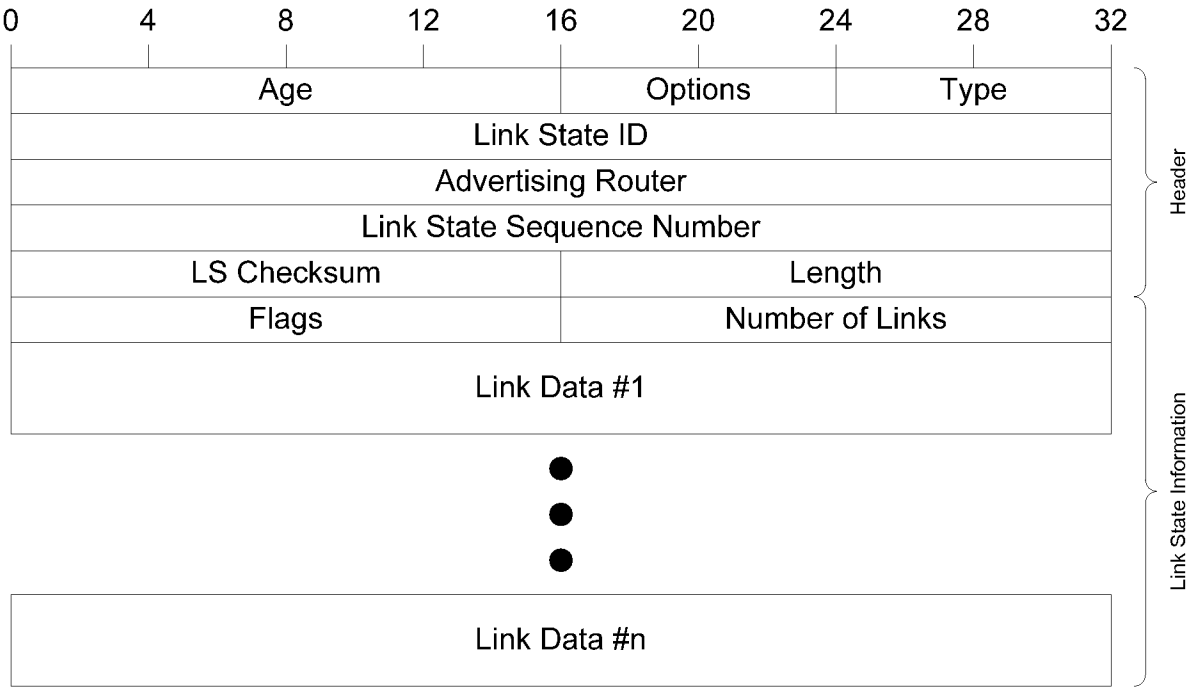
determine how far the link state advertisement has traveled on the network. Using the information in the link state advertisement allows metrics such as cost to be used to determine whether the link state information is relevant. Once the node determines the relevance of the link state information, the node may selectively forward the link state advertisement on the network based on the relevance of the information to the node or likely relevance of the information to other neighboring nodes. (see also specification at paragraphs 40-41). This enabled applicants to do away with the "area" construct of conventional OSPF so that routers did not need to be assigned to particular areas to control dissemination of routing information on the network.

Applicants have amended independent claim 1 to recite a method of controlling the dissemination of routing information on a communication network without requiring flooding areas to be pre-defined on the communication network. Li defines areas of the network, which Li refers to as cells or clusters. (Li at paragraph 32).

Claim 1 has further been amended to recite that the method includes the step of defining a maximum flooding radius for each link state advertisement to be flooded on the network, the maximum flooding radius enabling dissemination of the link state advertisement to be controlled on the network. Claim 1 has further been amended to recite preventing, by each node on the communication network, link state advertisements from flooding beyond their maximum flooding radius to control the dissemination of routing information by each node on the communication network without requiring flooding areas to be pre-defined on the communication network to thereby implement radius limited dissemination of routing information on the communication network. Li does not operate in this manner.

To understand how Li is operating, it is helpful to understand the structure of an OSPF message.

The header of a Link State Advertisement (LSA), in OSPF, has the following format (see IETF RFC 2328):



There are several different types of Link State Advertisements, which may be specified by the type field. Depending on the type of LSA, the format of the link state information is different. The format of the header generally doesn't change, however.

Li proposes to use two bits (S and R) from a "LSA Status Field" to specify whether the LSA is to be flooded globally or locally. Typically, with Opaque LSAs, the type field is used for this purpose. (See IETF RFC 2370, in which type 9 is defined as link local flooding, type 10 is defined for area local flooding, and type 11 is used for flooding within an entire autonomous system). Applicants did a search to try to figure out where the "LSA Status Field" fits into the OSPF format but did not find any additional information about the LSA Status Field proposed by Li. Thus, it is not clear where Li's LSA status field would fit in the conventional LSA header. In paragraph 42, Li states that "The present invention employs a LSA status field attached to each LSA." Thus, it appears that Li is proposing to extend the standard (IETF RFC 2328) to modify the LSA header to include a new "status field".

Within the status field, Li includes a flooding scope flag (FSF) S that may be set to either GLOBAL or LOCAL, and indicates the intended flooding scope of the LSA. (Li at paragraph 43). When the flooding scope flag is set to LOCAL, the LSA status field includes a time-to-live (TTL) sub-field specifying a number of hops that the LSA may travel before flooding is stopped.

Thus, Li proposes to include a flooding scope flag in the LSA header, and to also include a time to live sub-field in the LSA header. This is similar, in one aspect, to how applicants operate in that both applicants and Li impose a radius limit on the dissemination of link state advertisements on the network. Li, however, uses the TTL radius limitation on dissemination only for local link state advertisements. Applicants, by contrast, use this for all Link State Advertisements as noted in Claim 1. Further, Li imposes administrative boundaries on the network in the form of cells or clusters. Applicants, by contrast, eliminated this administrative aspect of the network organization as is reflected in claim 1. Accordingly, applicants respectfully submit that claim 1, as amended, is not anticipated or obvious over Li.

Rejection under 35 USC 103

Claims 7-15 were rejected under 35 USC 103 as unpatenable over Li in view of Kwaitkowski (U.S. Patent Application No. 2004/0120355). The Examiner cited Kwaitkowski as showing a plurality of OSPF routers.

Claim 7 recites "a plurality of OSPF routers interconnected in a network and belonging to an OSPF area, said plurality of OSPF routers being configured to selectively forward Link State Advertisements (LSAs) within the OSPF area by evaluating link state information contained in the LSAs to determine the relevance of the link state information on the network, such that not every OSPF router within the OSPF area receives every LSA." Li does not teach or suggest selectively forwarding LSAs based on the relevance of the link state information contained in the LSA. Li teaches that the LSA should include a TTL field, which is a field that would be included in the header of the LSA. The link state information that is contained in the LSA is the portion of the Link State Advertisement that follows the Link State Header. (See above figure). Kwaitkowski similarly does not teach or suggest this feature. Accordingly, claim 7 is believed patentable over the combination of Li and Kwaitkowski.

In connection with this rejection, the Examiner stated that Li discloses this feature, referring to the S-bit (LOCAL) and TTL field. However, these fields would be included in the LSA header and are not "link state information". Note, in this regards, that link state information is information contained in the Link State Advertisement which may be included by the node in its routing tables. (See paragraph 40). Claim 1 recites that the node should make a forwarding decision by evaluating this link state information to determine if it is relevant. Neither of the

references teaches or suggests that a node should make a forwarding decision by determining whether the LSA contains information that is relevant. Looking at a time to live field in the header may enable the node to determine whether it should drop the LSA, but does not enable the node to determine whether the LSA contains information that is relevant. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection under 35 USC 103

Claims 16 and 18-20 were rejected under 35 USC 103 as unpatenable over Li in view of Zhu (U.S. Patent Application No. 2007/0053300). Claim 16 was previously amended to recite that the network node includes control logic configured to inspect a link state advertisement received from a network, ascertain link state information from the link state advertisement, determine a relevance of the link state information, and selectively drop the link state advertisement if the link state information is not relevant. Li does not teach or suggest this feature. The Examiner cited Zhu as teaching a switch fabric, and as such it appears that Zhu also fails to teach or suggest this feature. Accordingly, applicants respectfully submit that this rejection should be withdrawn.

Conclusion

In view of foregoing claim amendments and remarks, it is respectfully submitted that the application is now in condition for allowance and an action to this effect is respectfully requested. If there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

Extension of Time

Applicants request a two month extension of time to respond to the outstanding Office Action. Payment of the two month extension of time is being submitted herewith. If any additional fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 141315 (Ref: 16258ROUS01U).

Respectfully Submitted

Dated: March 10, 2009

/John C. Gorecki/
John C. Gorecki, Reg. No. 38,471

Anderson Gorecki & Manaras LLP
P.O. Box 553
Carlisle, MA 01741
Tel: (978) 264-4001
Fax: (978) 264-9119
john@gorecki.us